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10/648,973

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Larry L. Johnson

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EXAMINER

AMRANY, ADI

ART UNIT

PAPER NUMBER

2836

DATE MAILED: 03/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/648,973

Applicant(s)

JOHNSON, LARRY L.

Examiner

Adi Amrany

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☒ Claim(s) 5-20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5/17/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 5 and 16 are objected to because claims 5 and 16 initially disclose a "rectifier/super capacitor device". A rectifier/super capacitor device, by definition, comprises a rectifier and a super capacitor. Reciting the limitation that the device comprises a capacitor improperly broadens the claims.

Claims 6-15 are objected to because they depend on claim 5.

Claims 17-20 are objected to because they depend on claim 16.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 20 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The claim includes the limitation that the system includes the control means for causing the switching mechanism to be a short circuit when said DC output from said at least

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one proton exchange membrane exceeds said predetermined value has no basis in the specification.

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1-3 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over the claims of U.S. Patent No. 6,960,838.

Although the conflicting claims are not identical, they are not patentably distinct from each other because:

CIP application claim 1 recites a device for use in a reliable electrical power supply system, said device comprising: a rectifier, said rectifier including an AC input and a DC output, said rectifier operable to convert AC electrical power received at said

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AC input to DC electrical power at said DC output; and a capacitor, said capacitor having a first side and a second side, said first side coupled to said DC output of said rectifier are obvious over parent claim 1. Parent claim 1 recites at least one rectifier operable to convert said AC electrical power to DC electrical power; and at least one capacitor coupled to the output of said at least one rectifier.

Further, the limitations not expressly recited by the claims in the parent case are inherent in elements of the application claims. A rectifier, by design, would contain an AC input and a DC output and a capacitor has a first and second side. Application claim 1 recites where said device also includes at least three connection points to which other devices may be coupled, the first connection point coupled internally to said rectifier AC input, the second connection point coupled internally to said rectifier DC output and said first side of said capacitor, and the third connection point coupled internally to said second side of said capacitor. It is inherent in any device containing two electrical elements that there would be three connection points, one at the input node, a second at the connection point between the two devices, and a third at the output node.

CIP application claim 2 recites that the third connection point is intended to connect to electrical ground. While this limitation is not expressly disclosed in the parent patent, it would be obvious to a person skilled in the art to couple the capacitor, in a rectifier/capacitor electrical system to ground. The motivation for doing so would have been to place the capacitor "downstream" of the rectifier, between the high and low (ground) voltage lines, in order to smooth out the DC output. Because a capacitor

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takes time to charge and discharge, it can absorb irregularities in a DC voltage to provide a steadier DC signal at the second connection point.

CIP application claim 3 recites wherein said rectifier is operable to provide at least 48 volts DC at said second connection point. The rectifier is designed to output a DC voltage. The specification discloses that the number of power generating elements used in the power system depends on the amount of power required by the destination facility. It would be obvious to a person skilled in the art to configure the device to output 48 volts, or any other amount, which would be determined by requirements of the destination facility. Furthermore, it has been held that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable value by routine experimentation." In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

6. Claims 4-20 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5, 8-10, and 12-13 of U.S. Patent No. 6,960,838 in view of U.S. Patent No. 6,666,123 to Adams. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

CIP application claim 4 recites the limitation that the capacitor is a super capacitor. The parent patent does not claim that the capacitor is a super capacitor. Adams discloses using a super capacitor to store energy received from a rectifier (column 4, lines 62-65).

At the time of the invention by applicant, it would have been obvious to replace the capacitor in the electrical power supply system with a super capacitor.

The motivation for doing so would have been because the super capacitor is better adapted to handling the high electrical power requirements of a power supply system. Super capacitors are capacitors with very high storage capacitance, on the order of 1 Farad, or higher. A comparable capacitor would be unreasonably large. The super capacitor is preferable in high-power power supply systems, because it would be smaller.

CIP application claim 5 recites a power supply system for providing reliable electrical power to a telecommunications facility, said facility containing telecommunications equipment, said system comprising: an AC power source, at least one rectifier/super capacitor device, each of said devices including a rectifier operable to convert said AC electrical power to DC electrical power adaptable to power said telecommunication equipment and a capacitor, said capacitor, coupled to the output of said rectifier; wherein each of said rectifier/super capacitor device also includes at least three connection points to which other devices may be coupled, the first connection point coupled internally to said rectifier AC input, the second connection point coupled internally to said rectifier DC output and said first side of said capacitor, and the third connection point coupled internally to said second side of said capacitor, and wherein said AC power source is coupled to said first connection point, said second connection point is coupled to said telecommunication facility, and said third connection point is coupled to ground.

The use of a super capacitor is obvious in view of Adams, and the three connection points are obvious in view of the parent patent, as described above. Further

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it is inherent that a rectifier would require an AC power source and that the AC input power would be coupled to the first connection point, since a rectifier is an electrical circuit that converts AC input power to DC output.

CIP claim 5 also recites a rectifier/super capacitor device. Parent patent claim 1 recites at least one capacitor coupled to the output of at least one rectifier.

Furthermore, it may be considered that a coupled rectifier and capacitor is a single device.

CIP application claim 6 recites the limitation that the AC power source is at least one microturbine generator operable to produce AC electrical power and adapted to be powered by a fuel. Parent patent claim 1 previously disclosed the use of at least one microturbine generator as the AC power source.

CIP application claim 7 recites the limitation that the fuel for said at least one microturbine generator is natural gas. This limitation was previously disclosed by parent claim 2.

CIP application claim 8 recites the limitation that the natural gas is supplied by a commercial utility. This limitation was previously disclosed by parent claim 3.

CIP application claim 9 recites the limitation in claim 5 that the fuel for said at least one microturbine generator is propane. This limitation was previously disclosed by parent claim 4.

CIP application claim 10 recites the limitation in claim 9 that said propane is stored on site. This limitation was previously disclosed by parent claim 5.

CIP application claim 11 recites the limitation in claim 5 that the AC power source is a commercial electric utility. This limitation is obvious in view of parent claim 8, which discloses that if the AC electrical power from the microturbine generator falls below a set value, a switch will couple the rectifier input to AC electric power from a commercial utility.

CIP application claim 12 recites that claim 5 further includes a first switching mechanism that is operable either to couple at least one microturbine generator to said first connection point or to couple a commercial electric utility to said first connection point. Parent claim 8 discloses coupling a switching mechanism between at least one microturbine generator and is operable to provide AC electrical power from a commercial utility to said at least one rectifier if said AC electrical power from said at least one microturbine generator falls below said predetermined value.

CIP application claim 13 recites that claim 5 further comprises at least one proton exchange membrane that is operable to produce DC electrical power adaptable to power said telecommunication equipment, said at least one proton exchange membrane adapted to be powered by a fuel, said proton exchange membrane coupled to said second connection point. Parent claim 1 discloses the at least one proton exchange membrane. While the parent patent does not expressly disclose coupling the PEM to the second connection point, it would be obvious to a person skilled in the art to couple a DC producing power source the output node of the rectifier. The motivation for doing so would have been to couple two power sources, one AC and one DC, at the point in the system after the AC source has been converted to DC supply voltage. By

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the same reasoning, it would also be obvious to couple an AC signal to the first connection point. Further, by coupling the PEM to the second connection point, the DC signal can take also advantage of the smoothing function of the super-capacitor.

CIP application claim 14 recites the limitation in claim 13 that the fuel for said at least one proton exchange membrane is hydrogen. This limitation was previously disclosed by parent claim 9.

CIP application claim 15 recites that claim 13 further includes a second switching mechanism operable to switch from said DC power produced by said at least one rectifier/super capacitor device to DC power produced by said at least one proton exchange membrane. Parent patent claim 12 discloses a proton exchange membrane fuel control operable to open said fuel valve in said proton exchange membrane fuel line if the AC electrical power provided to said rectifiers falls below a predetermined value. It would be obvious to a person skilled in the art that the fuel control of the parent patent is equivalent to the second switching mechanism of the CIP application. The fuel control is operable to open a fuel line, which distinguishes it from the first switching mechanism of parent claim 8, that switches between two electrical AC power sources. Also, parent claim 13 discloses a control means for switching from said DC power produced by said rectifiers to DC power produced by said at least one proton exchange membrane.

CIP application claim 16 recites a power supply system for providing reliable electrical power to a telecommunications facility, said facility containing telecommunications equipment, said system comprising: at least one proton exchange

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membrane, said proton exchange membrane including a fuel input and an electrical output, said proton exchange membrane operable to convert fuel received at said fuel input to generate DC electrical power at said electrical output; at least one rectifier/super capacitor device, each of said devices including a rectifier operable to convert said AC electrical power to DC electrical power adaptable to power said telecommunication equipment and a capacitor, said capacitor coupled to the output of said rectifier; wherein each of said rectifier/super capacitor devices also includes at least three connection points to which other devices may be coupled, the first connection point coupled internally to said rectifier AC input, the second connection point coupled internally to said rectifier DC output and said first side of said capacitor, and the third connection point coupled internally to said second side of said capacitor; and wherein said electrical output of said at least one proton exchange membrane is coupled to said second connection point, said second connection point also coupled to said telecommunication facility, and said third connection point is coupled to ground. These elements recited by application claim 16 are obvious in view of parent claim 1.

The super capacitor is obvious in view of Adams, as discussed above. Also, the proton exchange membrane, the rectifier/super capacitor device, and the three connection points would be obvious in view of the parent patent, as discussed above. Further, it would be obvious to couple the proton exchange membrane, which producing DC electric current, to the DC output of the rectifier. Coupling the second connection point to the telecommunication facility is obvious in parent claim 1, which discloses that the rectifier produces a DC electrical power adaptable to power said telecommunication

equipment. And coupling the third connection point to ground would be obvious to a person skilled in the art, as discussed above.

CIP application claim 17 recites the limitation where said fuel for said at least one proton exchange membrane is hydrogen. This limitation was previously disclosed by parent claim 9.

CIP application claim 18 recites the limitation in claim 17 that the hydrogen is stored on site. This limitation was previously disclosed by parent claim 10.

CIP application claim 19 recites that claim 16 further includes an AC power source coupled to said first connection point and a switching mechanism operable to switch from said DC power produced by said at least one rectifier/super capacitor device to DC power produced by said at least one proton exchange membrane. Coupling an AC power source to the first connection point is necessary, as discussed above. Further, the switching mechanism was previously disclosed by the fuel control of parent claim 12 and the second control means of parent claim 13.

CIP application claim 20 recites that claim 19 further includes control means for monitoring AC power produced by said AC sources and DC power produced by said at least one proton exchange membrane and for causing said switching mechanism to be an open circuit so long as said DC output from said at least one proton exchange membrane remains below a predetermined value. The control means is obvious in view of the switching mechanism disclosed in parent claim 8 and the second control means disclosed in parent claim 13.

The recitation in application claim 20 that the control means creates a short circuit across the switching mechanism when said DC output from said at least one proton exchange membrane exceeds said predetermined value has no support in the specification, and is rejected, as discussed above.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Shutts (US 5,959,851).

With respect to claim 1, Shutts discloses a device for use in a reliable electrical power supply system (figure 1; column 3, lines 13-24), said device comprising:

a rectifier (figure 1, item 102; column 3, lines 32-33), said rectifier including an AC input and a DC output, said rectifier operable to convert AC electrical power received at said AC input to DC electrical power at said DC output; and

a capacitor (figure 1, item C1; column 3, lines 33-35), said capacitor having a first side and a second side, said first side coupled to said DC output of said rectifier (figure 1);

wherein said device also includes at least three connection points (figure 1, items 102, C1) to which other devices may be coupled, the first connection point coupled internally to said rectifier AC input, the second connection point coupled internally to said rectifier DC output and said first side of said capacitor, and the third connection point coupled internally to said second side of said capacitor.

The three connection points are shown in figure 1. The first connects the AC power source 101 to the rectifier 102. The second connects the rectifier 102 with the capacitor C1. The third, on the second side of the capacitor C1, connects it to ground. Claim 1 appears to claim a rectifier/capacitor combination for use with an AC source. This type of configuration is well known in the art.

With respect to claim 2, Shutts discloses the device of claim 1, and further discloses said third connection point is intended to be connected to electrical ground (figure 1, item C1).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 3-5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shutts.

With respect to claim 3, Shutts discloses the device according to claim 1, but does not expressly disclose said rectifier is operable to provide at least 48 volts DC at said second connection point. It would be obvious to a person skilled in the art to configure the device to output 48 volts, or any other amount, which would be determined by requirements of the destination facility, as discussed above.

With respect to claim 4, Shutts discloses the device according to claim 1, but does not expressly disclose said capacitor is a super capacitor.

At the time of the invention by applicant, it would have been obvious to replace the capacitor in the electrical power supply system with a super capacitor. The motivation for doing so would have been because the super capacitor is better adapted to handling the high electrical power requirements of a power supply system, as discussed above.

With respect to claim 5, Shutts discloses a power supply system for providing reliable electrical power to a telecommunications facility (figure 1; column 3, lines 13-24), said facility containing telecommunications equipment, said system comprising:

an AC power source (figure 1, item 101; column 3, lines 30-31); and
at least one rectifier/super capacitor device (figure 1, items 102, C1; column 3, lines 32-35), each of said devices including a rectifier (item 102) operable to convert said AC electrical power to DC electrical power adaptable to power said telecommunication equipment and a capacitor (C1), said capacitor coupled to the output of said rectifier;

wherein each of said rectifier/super capacitor devices also includes at least three connection points to which other devices may be coupled, the first connection point coupled internally to said rectifier AC input, the second connection point coupled internally to said rectifier DC output and said first side of said capacitor, and the third connection point coupled internally to said second side of said capacitor; and

wherein said AC power source is coupled to said first connection point, said second connection point is coupled to said telecommunication facility, and said third connection point is coupled to ground.

It is inherent that a device with two components (rectifier and super capacitor) would have three connection points, as discussed above. The three connection points are disclosed by Shutts in figure 1 and described in the rejection of claim 1, above. Further, figure 1 discloses that the AC power source is coupled to the first connection point and that the third connection point is coupled to ground.

Shutts does not expressly disclose that the second connection point is coupled to a telecommunication facility. It would have been obvious to couple the rectifier/super capacitor device disclosed in Shutts to a telecommunication facility. Shutts discloses that the second connection point (RAW B+) is coupled to a load (figure 1, item 118), which in one embodiment is a television signal receiver. Shutts then discloses that power supply may be reconfigured for other applications (column 3, lines 21-24).

With respect to claim 11, Shutts discloses the device of claim 5, and further discloses the AC power source is a commercial electric utility (column 3, lines 30-31).

Shutts discloses that the input source is a 110-volt AC, 60 hertz voltage, which is the standard for commercial electric power in the United States.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adi Amrany whose telephone number is (571) 272-0415. The examiner can normally be reached on weekdays, from 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571) 272-2058. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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PRIMARY EXAMINER